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effectively on oxygen and hydrogen than on any other mixture of gases that I have tried. One volume of nitrous gas was mixed with a volume of hydrogen, and introduced into a tube with a plate which had been made positive in the dilute sulphuric acid for four minutes (306). There was no sensible action in an hour: being left for thirty-six hours, there was a diminution of about one-eighth of the whole volume. Action had taken place, but it had been very feeble.

308. A mixture of two volumes of nitrous oxide with one volume of hydrogen was put with a plate similarly prepared into a tube (305,, 306). This also showed no action immediately; but in thirty-six hours nearly a fourth of the whole had disappeared, *i.e.* about half of a cubic inch. By comparison with another tube containing the same mixture without a plate, it appeared that a part of the diminution was due to solution, and the other part to the power of the platina; but the action had been very slow and feeble.

309. A mixture of one volume olefiant gas and three volumes oxygen was not affected by such a platina plate, even though left together for several days (376, 377).

310. A mixture of two volumes carbonic oxide and one volume oxygen was also unaffected by the prepared platina plate in several days (381, etc.).

311. A mixture of equal volumes of chlorine and hydrogen was used in several experiments, with plates prepared in a similar manner (306). Diminution of bulk soon took place; but when after thirty-six hours the experiments were examined, it was found that nearly all the chlorine had disappeared, having been absorbed, principally by the water, and that the original volume of hydrogen remained unchanged.

No combination of the gases, therefore, had here taken place.

312. Reverting to the action of the prepared plates on mixtures of oxygen and hydrogen (306), I found that the power, though gradually diminishing in all cases, could still be retained for a period, varying in its length with circumstances. When

tubes containing plates (305) were supplied with fresh portions of mixed oxygen and hydrogen as the previous portions were condensed, the action was found to continue for above thirty hours, and in some cases slow

combination could be observed
even after eighty hours; but the
continuance of the action
greatly depended upon the purity of the
gases used (374).
313. Some plates (305) were made
positive for four minutes
in dilute sulphuric acid of specific
gravity 1.336: they were